

C<sup>2</sup>  
cont

a substrate of a first doping type;  
an undoped region, laterally disposed above the substrate;  
a grating positioned between the substrate and the undoped region;  
a waveguide laterally disposed above the undoped region;  
an upper region, of a second doping type, laterally disposed above the  
waveguide region, where the waveguide is of a different atomic composition than the  
substrate, undoped region, and upper region; and  
a tuning section for changing an effective index of said grating.

30. (New) A semiconductor device of claim 1, wherein said tuning region comprises  
means for selecting a particular wavelength by changing said effective index of said  
grating.

C<sup>3</sup> sub 103  
31. (New) The semiconductor device of claim 30 wherein said tuning region comprises  
an electrode, and said means for selecting comprises means for changing an electrical  
current input to said electrode.

32. (New) A semiconductor device of claim 5, wherein said tuning region comprises  
means for selecting a particular wavelength by changing said effective index of said  
grating.

sub 104  
33. (New) The semiconductor device of claim 32 wherein said tuning region comprises  
an electrode, and said means for selecting comprises means for changing an electrical  
current input to said electrode.

### REMARKS

This RCE is responsive to the final office action dated July 23, 2002 in which the Examiner  
rejects all the pending claims 1-13, 16, 18-19 and 29 as either being anticipated by Matsui (JP Patent